PROJECT PLANNING SYSTEMS OF AIR AND RAIL CARGO TERMINALS

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ABSTRACT

In this research project, we attempt to analyse the project planning systems of two major cargo terminals in Hong Kong, namely Hong Kong Air Cargo Terminals Limited (HACTL) and Kowloon-Canton Railway Corporation (KCRC). Both organisations are capital intensive, and both are monopoly freight transportation businesses in their distinctive transportation modes. Research objectives are:

1. To analyse and compare the project planning systems of HACTL and KCRC;
2. To contrast the project planning activities of HACTL and KCRC with current models of project planning; and
3. To make recommendations for further improvements to the project planning systems of the two cargo terminals.

Data collection was done by means of informal interviews with executives of the two companies, as well as by referring to written materials and documentation of the cargo terminals. Supporting statistical information was extracted from publications of the Hong Kong Government.

Management functions and techniques in project planning, as well as relevant models such as Project Life Cycle Model and Input-Output System Model are presented and served as a framework for the evaluation and analysis of the project planning systems in the two companies. System strengths and weaknesses, and internal and external limitations are the focuses of analysis. Recommendations are made for further improvement to the systems in the two companies. Hopefully, such recommendation will also be helpful to planning executives of other business in solving similar problems in their particular business environments.

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CHAPTER I

INTRODUCTION

Growth of Freight Industry

Hong Kong has been experiencing a prosperous growth in its international trading activities during the 1980's. This is mainly due to the economic reform and open door policy adopted in the People's Republic of China. Growth rates in international movement of commercial cargo between 1983 and 1988 are reported as[1]:

Ocean-going vessels:	94 percent
River vessels :	86 percent
Air :	89 percent
Railway :	67 percent
Road :	346 percent

There is only one operator in the air and railway freight industries: Hong Kong Air Cargo Terminals Limited (HACTL) in air freight and Kowloon-Canton Railway Corporation (KCRC) in rail freight transport. Both companies operate cargo terminal businesses, and play important roles in the consolidation and distribution of imports, exports and the transhipment of cargoes in Hong Kong. KCRC also acts as a carrier for the transportation of railborne cargo to and from the

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[1]Census and Statistics Department. Hong Kong Monthly Digest of Statistics November 1989.

People's Republic of China. As the operation of cargo terminals requires large amounts of investment capital, the project planning and management function becomes a major component in the management systems of the HACTL and KCRC. Although project planning is a staff function in management terms, it acts as the hub of the management wheel, with essential connections to the other management functions in the company.

Objectives of the Project

The objectives of this research project are:

1. To analyse and compare the project planning systems of HACTL and KCRC.
2. To contrast the project planning activities of HACTL and KCRC with current models of project planning.
3. To make recommendations for further improvements to the project planning systems of the two cargo terminals.

The first part of the research project will introduce some current models in project planning and management, following which the project planning systems being used by the two cargo terminals will be described. The second part of this project is to focus on the applicability of the models to the corresponding systems in the two cargo terminals. Strengths, weaknesses and limitations of the project planning systems of the two cargo terminals will be identified and evaluated. Finally, recommendations for

improvements to the project planning systems of the two cargo terminals will be proposed.

Hong Kong Air Cargo Terminals Limited

Brief History of HACTL

Prior to 1976, air cargo in Hong Kong was handled by individual airlines. During that period, high rates of mishandling and pilferage were experienced due to poor facilities and equipment, and to insufficient controls. A consolidated air cargo terminal was then prepared by the government to overcome these problems. HACTL was incorporated in December 1971, with building work commencing in early 1974, and the terminal was opened in January 1976.

HACTL now operates under a private franchise incorporating a profit control scheme to provide cargo handling, storage, build-up, break-down, data and documentation processing services on a 24-hour basis to all 60 airlines operating in Hong Kong International Airport. It is estimated that 21 percent by value of Hong Kong external trade passes through HACTL, although it only represents 1 percent in terms of tonnage.[1] HACTL now handles, within a single air cargo terminal, more tonnage than any other air cargo terminal in the world. Yet, despite these high tonnage levels, HACTL maintains extremely high levels of service to customers with a mishandling rate of less than three consignments in every ten thousand handled.

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[1]Census and Statistics Department. Hong Kong Review of Overseas Trade in 1988 April 1989.

HACTL Organisation Structure

The organisation structure of HACTL is rather simple (Figure 1). Operating under the Managing Director and the General Manager are six departments, Personnel, Accounts, Operations, Engineering, Information Services and Planning, together with a subsidiary company, HACIS, which specializes in providing services to air cargo agents. The last four departments are under direct supervision of the General Manager. The Operations Department is the largest with more than one thousand employees, responsible for all daily operational activities at the floor levels of the terminal. They are supported by Engineering and Information Services for the maintenance of operational facilities and equipment, and computerized operations planning, control and communications systems. For project planning, depending on the nature of the system to be implemented, the four departments, i.e. Operations, Engineering, Information Services and Planning are usually involved.

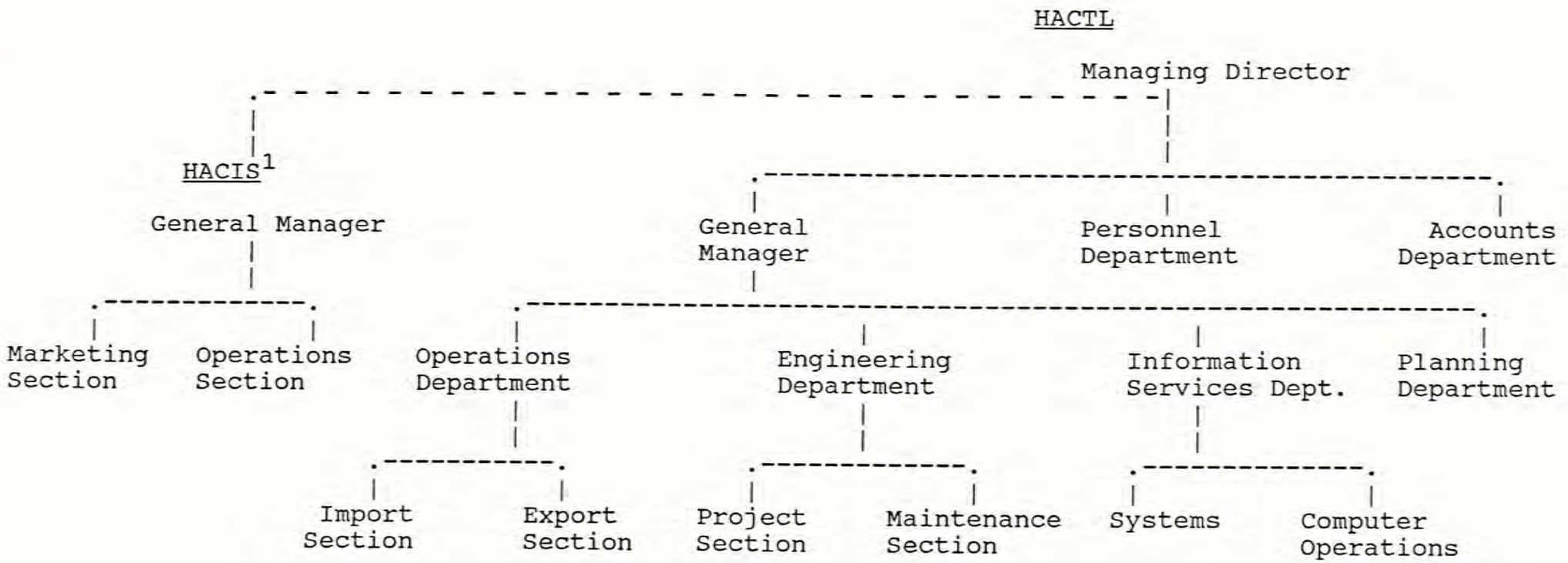
Kowloon-Canton Railway Corporation

Brief History of KCRC

The British Section of the Kowloon-Canton Railway was constructed in 1910 and its counterpart, the Chinese Section was completed one year later. The British Section, which was built by the Hong Kong Government, has been serving the community in three main areas since its commissioning on 1 October 1910:

FIGURE 1

ORGANISATION CHART OF HONG KONG AIR CARGO TERMINALS LIMITED



Note: [1]HACIS stands for Hong Kong Air Cargo Industry Services Limited, a wholly owned subsidiary of HACTL.

1. Local passenger traffic between Kowloon and the New Territories;
2. International passenger traffic between Hong Kong and China;
3. International freight traffic between Hong Kong and China.

After 67 years of service, in order to cope with changing needs and environment, the government initiated a modernisation and electrification programme for the railway. The programme was started in July 1978 and substantially completed in July 1983. The end result of this programme was an essentially new infrastructure for the railway, which included double tracking of the mainline, the provision of electric passenger coaches, a centrally controlled signalling system, a new internal communications network, eight stations rebuilt and three new stations.

In September 1981, the government decided to transfer the control of the railway from a government department to a public statutory corporation. This was to provide for the expansion of the operational and commercial needs of the railway. After one year of planning and preparation, KCRC was established on Christmas Eve, 1982. The new corporation took up the management and operating responsibilities of the railway on 1 February 1983, six months before completion of the modernisation and electrification programme of the railway.

Evolution of Freight Organisation Structure

Before 1983, passenger services and freight services were grouped under the Traffic Department, Operations Division in the Corporation. Passenger station managers were required to oversee the function of freight services in addition to their passenger traffic management duties. In mid 1983, the Corporation decided that the two service streams should become independent departments. It was felt that different marketing needs could be entertained more effectively, and that management efficiency would be enhanced. The Freight Services Department was then established from the existing Passenger Services Department, and a separate management structure was developed. A total of five freight yards, located at Kowloon, Homantin, Mong Kok, Shatin, and Fo Tan, and one marshalling yard at Lo Wu, were grouped under the control of the new Freight Services Department.

The reorganisation proved to be a correct decision, as inbound freight tonnage has increased by 38 percent and outbound freight tonnage has increased by 572 percent in the six-year period from 1983 to 1988. Revenue generated from freight business also increased from HK$57.4 million in 1983 to HK$143 million in 1988, representing a 149 percent nominal increase.

After several additional reorganisations, the former Freight Services Department is now subdivided into two departments: Freight Services Department and

Freight Operations Department. Total number of staff working for the two departments is 125, in which 106 are operational staff. A simplified organisation chart of KCRC is shown in Figure 2.

Impact of Changes in China

After the Beijing incident on June 4th 1989, the growth of Hong Kong ecomony slowed, but the impact on the international movement of cargo has been minimal.

> The Beijing Massacre on 4 June 1989 was a tragedy in human terms; the shock of this event ..... and the resulting loss of confidence significantly affected the Hong Kong transportation industry of which HACTL is a part. Although a new tonnage record of 695,809 tonnes representing a 5.9% growth for the year 1989 ..... this was below our original forecast of a growth of 7.3%.[1]

By comparing the freight traffic performance of the different transport modes in the third quarter of 1989 with those of the second quarter, only the normal seasonal changes are noted[2]:

River vessels	:	+1.4 percent
Air	:	+4.6 percent
Railway	:	-1.2 percent
Road	:	+5.3 percent

At the time of writing this paper, the import and export data for ocean-going vessels in the third quarter of 1989 is not available.

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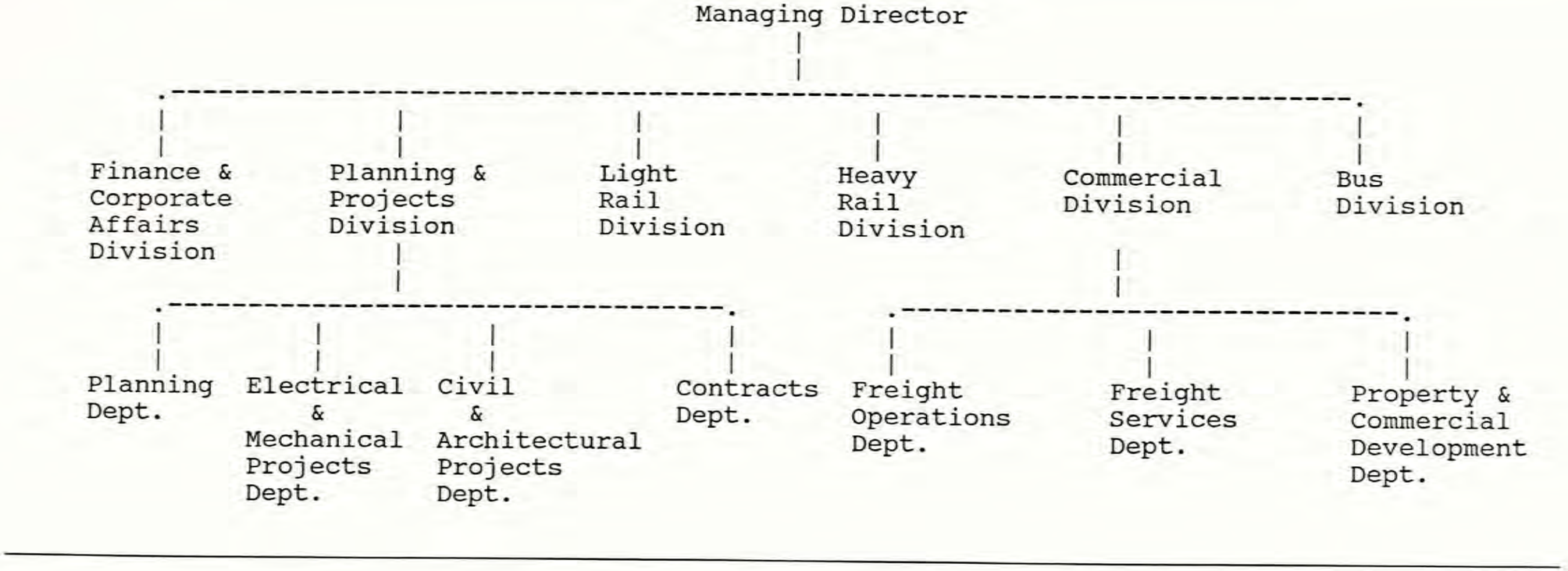
[1]Hong Kong Air Cargo Terminals Limited. Hong Kong Air Cargo Terminal Limited 1989 Annual Report March 1990.

[2]These changes do not differ significantly from those noted in 1987 and 1988.

FIGURE 2

SIMPLIFIED ORGANISATION CHART OF KOWLOON-CANTON RAILWAY CORPORATION



Due to the distinctive business environment and sound financial base of HACTL and KCRC, their planning activities, which are mainly focusing on long term capital investment projects, have not been affected by the political incident.

CHAPTER II

PROJECT PLANNING MODELS

Management of Project

Project work is different from the daily operations of an on-going enterprise in a relatively steady state. A project is usually a capital undertaking which has a well-defined starting point and objectives, and the completion of the project is determined by the achievement of the stated objectives. A project can be defined as,

> any undertaking with a defined starting point and defined objectives by which completion is identified. In practice, most projects depend on finite or limited resources by which the objectives are to be accomplished.[1]

As resources are limited in one way or another, there are inevitable constraints on the project work to be accomplished, and this underlines the need for special management control. Project management is defined as:

> The art of directing and coordinating human and material resources throughout the life of a project by using modern management techniques to achieve predetermined objectives of scope, cost, time, quality and participant satisfaction.[2]

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[1]Project Management Institute. Project Management Journal (Drexel Hill, Pennsylvania), August 1986.

[2]Ibid.

Projects can be classified into two types: first, those which are complete in themselves, like the replacement airport or the light rail transport system, and second, those which represent a series, or programme, of products or projects, like an aircraft or an aid programme. We will focus this study on the first type of project.

Project Life Cycle Model

Projects are accomplished according to a common life-cycle. Every project, no matter of what kind or for what duration, essentially follows the activity sequence of prefeasibility/feasibility, design and contract negotiation, implementation, handover and in-service support[1]. More systematically, Wideman[2] identifies four distinct project phases or stages which make up the typical project life cycle:

1. Concept (Conceive)
2. Planning (Develop)
3. Implementation (Execute)
4. Termination (Finish)

The level of effort required to conduct a project during its life time is shown in Figure 3. The typical activities or tasks performed in each phases of the project are summarized as follows:

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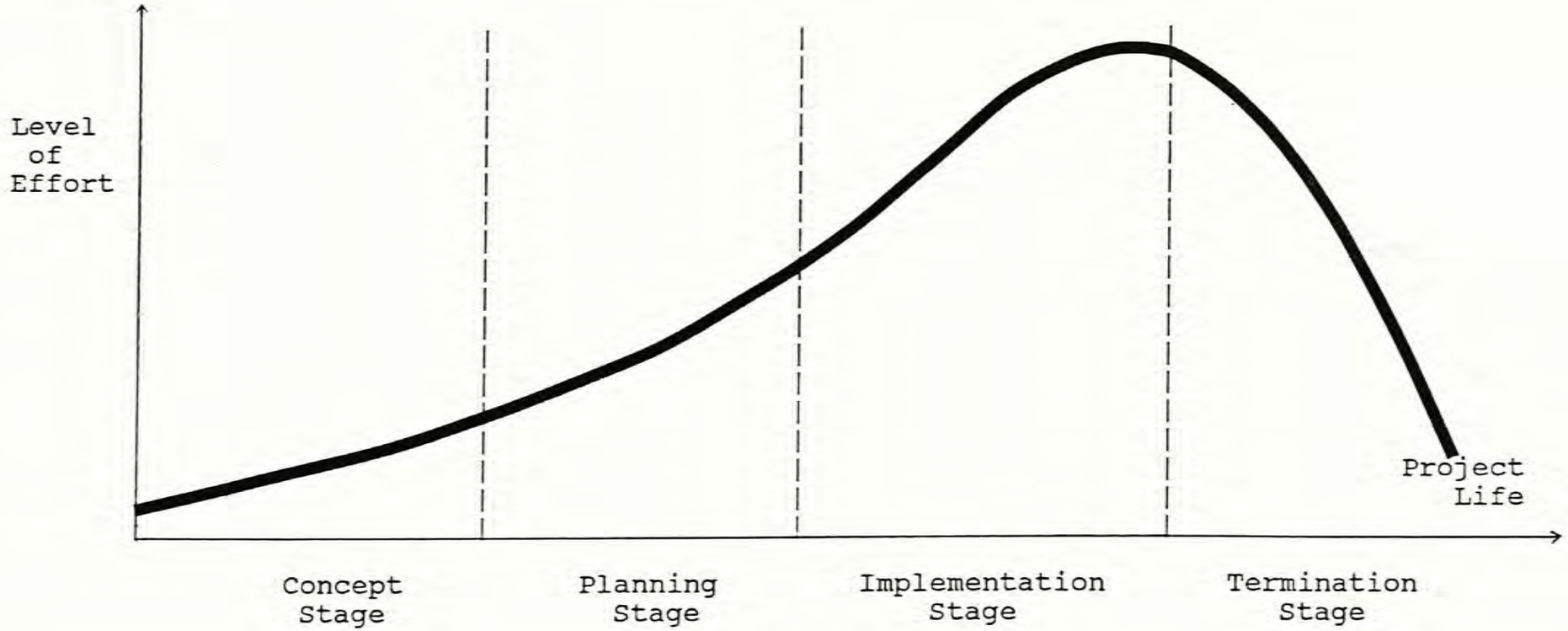
[1]Peter W. G. Morris and George H. Hough. The Anatomy of Major Projects. John Wiley & Sons, 1987.

[2]R. Max Wideman. "Successful Project Control and Execution." International Journal of Project Management 7 (May 1989):110.

FIGURE 3

GENERALIZED LEVEL OF EFFORT DIAGRAM



Source: R. Max Wideman. "Successful Project Control and Execution." International Journal of Project Management 7 (May 1989):110.

Concept Stage

* Identify need or requirements
* Establish feasibility with
  - program, process schematics
  - sketches and outline drawings
  - basic budget and schedule
  - financing
* Identify alternatives
* Present proposal
* Obtain approval to proceed

Planning Stage

* Develop: - Plan
  - Sketches and diagrams
  - Standards
* Conduct studies
* Select equipment
* Reconfirm economics
* Develop: - Budget
  - Schedule
  - Cash flow
* Prepare and submit project brief
* Obtain approval to implement

Implementation Stage

* Set up organisation
* Working drawings and specifications
* Design review
* Procure equipment
* Procure installation/construction services

* Produce physical entity
* Quality assurance
* Verify performance
* Modify as required

Termination Stage

* Train operators
* Transfer materials
* Document results
* Transfer responsibility
* Release resources
* Reassign project team

Project Management Functions

The management functions[1] involved in a project typically include management of:

* Human and material resources
* Scope
* Cost
* Time
* Quality
* Communications
* Risk
* Procurement and contract

Each area represents a special discipline demanding varying degrees of training, and the requirement for each function depends on the size and nature of the project in question. In pulling together

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[1]R. Max Wideman. "Successful Project Control and Execution." International Journal of Project Management 7 (May 1989):110.

these functional disciplines, a number of special techniques are used as the project progresses through its life-cycle. Typical of these techniques[1] are:

* Design management
* Scheduling
* Work breakdown analysis
* Task-responsibility matrices
* Project organisation
* Cost control
* Contract administration
* Quality management
* Team selection and building

Each project requires a particular mix of these tools and techniques structured to fit the project environment and life cycle.

Input-Output System Model

In this research project, the Project Planning System (PPS) is defined as a systems framework in which a project in the concerned organisations goes through its life cycle from conception stage to its abandonment or implementation.

The term project planning is used instead of project management. Project management emphasizes the management control processes of project implementation. In this study, it was found that there were a large number of projects abandoned before implementation.

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[1]Peter W. G. Morris and George H. Hough. The Anatomy of Major Projects. John Wiley & Sons, 1987.

With a view to covering all the projects initiated in the two focal organisations, whether they be implemented or not, the term project planning is adopted.

With reference to Morris and Hough[1], Milosevic[2] and Morris's research model on preconditions of project success[3], a simple input-output model of a PPS was constructed, and is shown in Figure 4.

The elements of the PPS input-output model are outlined below:

1. Inputs into the PPS include scope definition, work breakdown structure (WBS), manpower, equipment, money, resources cost and performance criteria.
2. Outputs of PPS comprise scope definition achieved, schedules, resource allocations, reports and project acceptance.
3. The process in PPS transforms inputs to outputs, which encompasses the management of scope, time, cost, quality, human resources, communications and contract.
4. Feedback is that of project planning experience, whether it be success or failure.

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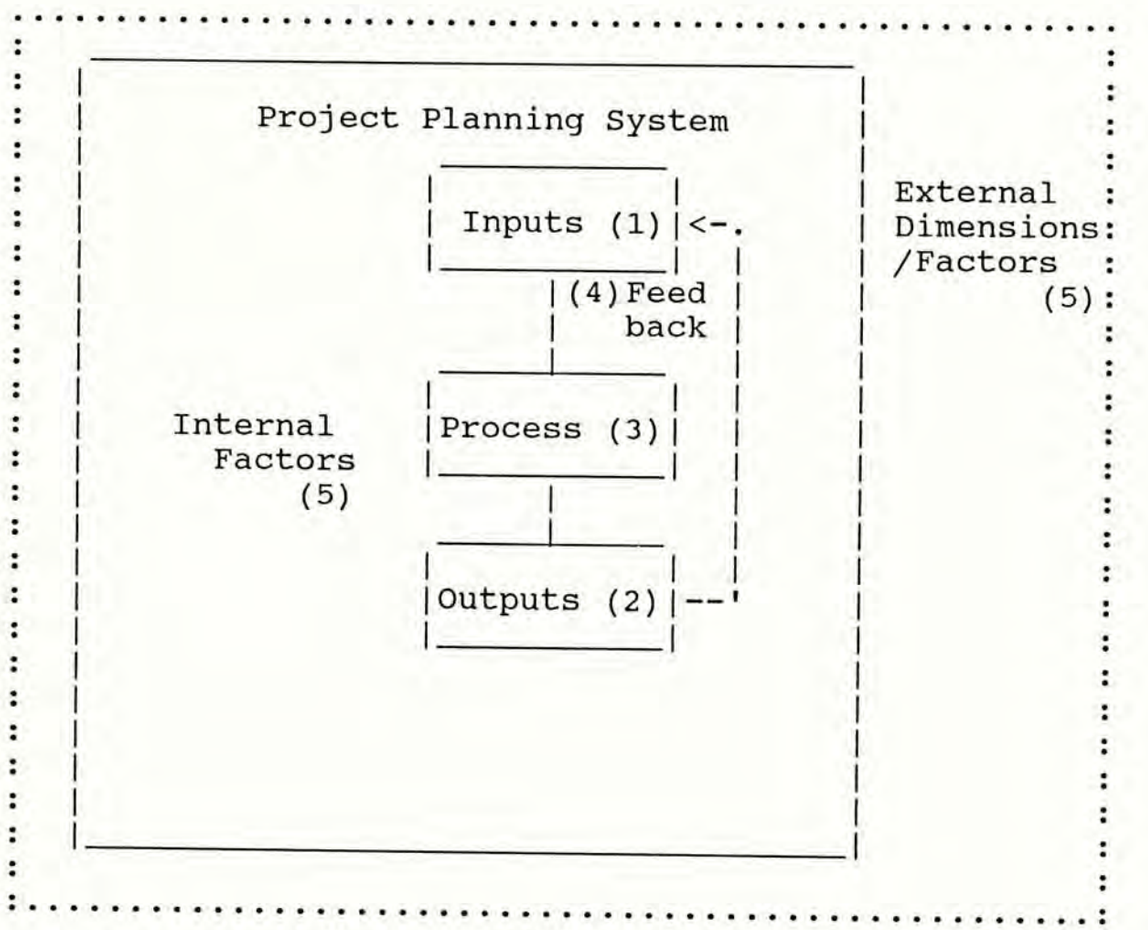
[1]Peter W. G. Morris and George H. Hough. The Anatomy of Major Project John Wiley & Sons, 1987.

[2]Dragan Z. Milosevic. "Systems Approach to Strategic Project Management." International Journal of Project Management 7 (August 1989):173.

[3]Peter W. G. Morris. "Initiating Major Projects: The Unperceived Role of Project Management." International Journal of Project Management 7 (August 1989): 180.

FIGURE 4

INPUT-OUTPUT SYSTEM MODEL
FOR PROJECT PLANNING



Note: for details of each element, please refer to the text section indicated by the number in brackets.

5. The internal and external factors influence the process and the efficiency and effectiveness of PPS or may have a bearing on the potential success or failure of the project. These dimensions/factors include:

   a. Project Definition
      - Project objectives and their viability

   b. Managerial and Organisational Factors
      - Organisation structure
      - Planning effort and support
      - Leadership
      - Project controls
      - Human relations and teamwork
      - External and internal communication
      - Human error or incompetence, incapacity/ incapability
      - Time for planning

   c. Environmental, Social and Political Pressures

   d. Technical Factors
      - Project interfaces coordination
      - Design management

   e. Finance and Commercial Considerations

CHAPTER III

RESEARCH METHODS

Data collection and fact finding for the project were accomplished by conducting informal interviews with executives from both planning and front-line user departments in HACTL and KCRC, and by referring to written materials, policy procedures and annual reports of the two companies. In order to reduce the bias that likely occurs in the face-to-face interviews, two executives from planning and two from front-line user departments were interviewed in each of the study companies. Supporting information was extracted from the statistical publications of the Hong Kong Government.

Literature research was done to identify and select the appropriate models for evaluation and analysis of the project planning systems of the two cargo terminals. The literature research covered such topics as business planning, management planning and control, long term planning, project analysis, and project management. From the material selected, a theorectical framework was contructed.

In addition, both the writers have been working in the two cargo terminals for more than five years, during which they have been heavily involved in the planning activities of the two terminals. Based upon

the professional experience of the writers and the opinions obtained in the interviews with the executives of the two companies, the project planning systems in the two terminals were analysed and evaluated according to the theorectical framework established. Specific recommendations for improvement to these project planning systems were also put forward.

CHAPTER IV

PROJECT PLANNING SYSTEMS

Definition and Classification of Projects

Hong Kong Air Cargo Terminals Limited

In HACTL, there is no company definition of a project. However, it is generally understood that project refers to those works or purchases which involve increase in total assets or capital investment.

Every project has its own objectives and, in HACTL, it is usually of one or more of the following:

1. To improve customer service standards;
2. To increase cargo handling capacity;
3. To replace old facilities;
4. To enhance operational efficiency.

The revenue of HACTL is directly related to the volume of air cargo handled and the above objectives share the same goal of maintaining or enhancing the terminal's throughput capability, thereby ensuring its revenue earning power.

Projects in HACTL are classified by nature. Based on the nature of the fixed asset to be added, projects can be grouped into four categories, namely, mechanical handling systems, building and terminal facilities, mobile equipment, and computer and information systems. What is more, projects can be classified by size.

Although there is no specific company guideline on this classification, it is generally accepted that items with cost estimates above one million dollars are considered as large projects. Those under HK$100,000 are small projects and the items in between are medium projects.

Kowloon-Canton Railway Corporation

Coverage of 'Projects' includes all engineering works and related consultancy jobs which will lead to additions and modifications to the infrastructure of the railway. In this regard, maintenance works which will not affect the asset value of the Corporation will not be considered as projects.

Different projects initiated by all establishments in KCRC are categorised as major and minor works. The categorisation criterion rests on the cost estimate of the project. Those items with cost estimates above HK$250,000 are categorized as major works items.

The project planning system of the railway, as with systems and working procedures in the Corporation, is driven and directed by corporate policy. From the project approval stage to the control stage in the project life cycle, written policies are to be referred and strictly adhered to by all establishments in the Corporation.

This policy driven approach serves three basic functions:

1. To ensure that all projects initiated shall obtain proper approval and authorisation before detail planning and execution are to be performed;
2. To stipulate the procedures whereby projects are initiated, developed and approved;
3. To establish a system that all projects are properly controlled in terms of time and money.

Comparison of the Two Terminals

In both companies, projects involve investments of capital expenditure which will enhance or contribute to increase in the asset value of the organisations. For HACTL, there is no company definition of project; but in the case of KCRC, a more concrete definition of projects is specified.

Project Conception and Budgeting

Hong Kong Air Cargo Terminals Limited

Project conception can take place in any department and level of management. Conception is usually stimulated by a decline in the efficiency of an operational problem, or, most often, by a change in the air cargo environment. The latter is often an increasing demand for handling capacity, or suggestions and requirements from airport monitoring bodies.

In the conception stage, a preliminary study or a discussion of functional feasibility, usually of a low level of technical consideration, may be carried out to establish the feasibility and the budgetary costs of the project. Depending on the size, nature and the concerned departments of the projects, such studies may be performed by the departments themselves or by the Planning Department or, occasionally, by senior management.

Projects in the conception stage are assessed for urgency, and are normally scheduled for the next year or even later so that funds can be requested and allocated. Urgent projects are handled as unbudgeted items, and proceed to a more detailed study as soon as management approval has been received.

With funding provided in the budget of the financial year, the concerned project is activated according to the initial schedule.

Kowloon-Canton Railway Corporation

In KCRC, projects initiated by the Freight Department are related to improvement of existing facilities and addition of new cargo handling equipment. All projects serve a common goal of improving the cargo handling capacity of KCRC. Concepts of a project are normally brought forward by the Freight Department heads. Specifications of these concepts are carried out by the officers of the initiating departments, based upon the instructions of

the department heads. Preliminary studies, site investigation, financial viability and alternatives formulation will be worked out internally within the departments. Inputs from other departments are minimal at this stage.

Before a concrete proposal is generated, the department heads, being the cost centre controllers of their departments, have to ensure that sufficient funds are available in the current year budget for the proposed projects. All major works items must be included in the current year budget so that funding is available. Any unbudgeted items may have to be deferred to next year or endorsed by the Managing Director in the approval stage.

Comparison of the Two Terminals

Budgets play a dominant control function in the allocation of capital expenditures in both of the cargo terminals. In the changing business environment, project planning becomes indispensable in improving the handling capacity to cope with the traffic demand. Concepts of projects are mainly derived from external demand or driven by improvement needs. Planning departments play minor roles or provide as support for the front line initiating departments during the conception stage.

Organising for Project Planning

Hong Kong Air Cargo Terminals Limited

There has yet to be established a standardized, well defined organisation or responsibility structure for project planning in HACTL. Rather, this varies with different types of projects, and from project to project of the same type. In most cases, however, the project organisation can be said to follow a project team, a working group, or a functional approach.

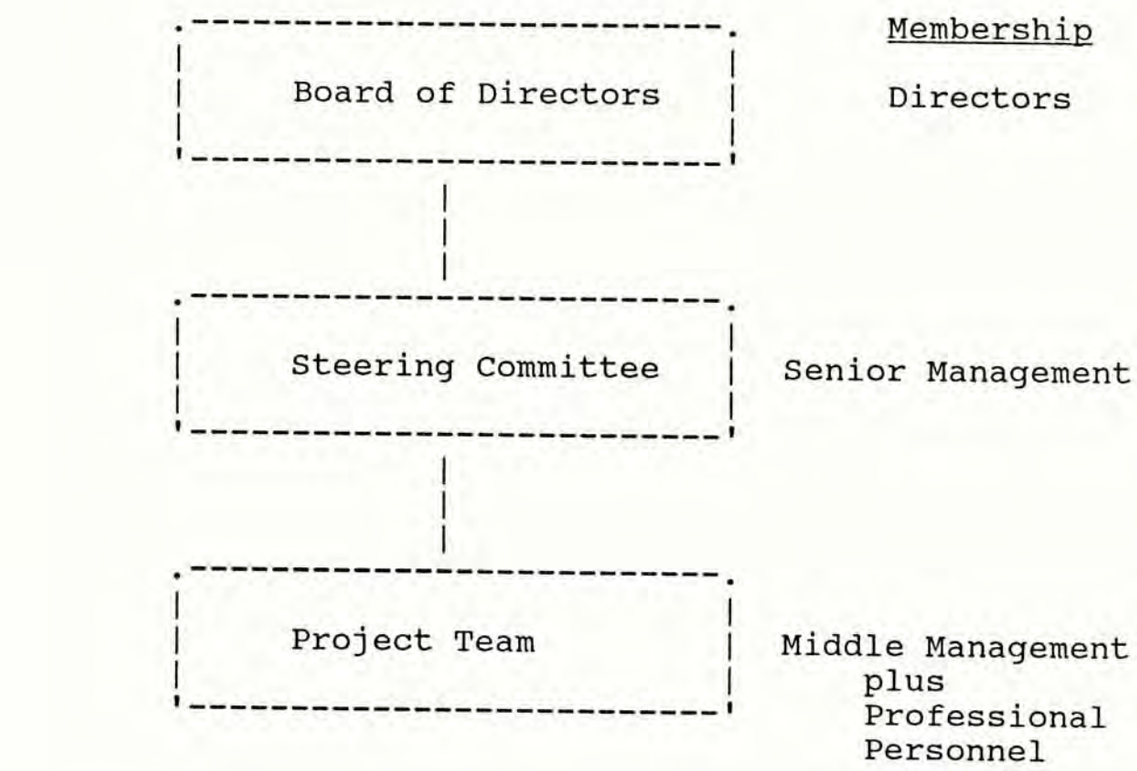
Project team approach

For large projects, like terminal expansion or construction, the Managing Director or the General Manager will appoint a project team to carry out the feasibility study, the requirement study and preliminary design, the detailed design, the tender specifications list, the contract document preparation, and the contract administration and coordination among contractors. The project team is made up of representatives from the relevant departments, and is usually led by the representative from the Planning Department. This full time team has to report to a steering committee made up of heads of departments, the Managing Director and the General Manager (Figure 5). The functions of the steering committee are as follows:

1. To act as a communications link between the board of directors and the project team for communication of shareholders' preferences and the technical feasibility of the project;

FIGURE 5

PROJECT TEAM APPROACH IN
HONG KONG AIR CARGO TERMINALS LIMITED



2. To give guidelines, company policy and direction related to the project;
3. To determine resource allocation, and to prioritize project activities;
4. To monitor the progress of the project.

A typical example of project team approach is given in the Case of HACTL Terminal 2 presented in the Appendix.

Working group approach

For medium size projects or sub-system projects of a larger project (such as office automation, a telephone system or a new cargo handling facility), a part time working group may be adopted. The members of the working group come from the user department of the proposed project, the department performing system study and design, and the technical and execution department. The working group may report to a relevant steering committee, project team or respective department head of individual member. Using this approach, the working group meets regularly to set the project schedule, scope, roles and responsibility, to monitor and report on project progress, to exchange ideas, and to resolve departmental conflicts. Actual workload of the project is shared among members according to the function of respective departments (Table 1).

TABLE 1

DEPARTMENTAL FUNCTIONS FOR
PROJECT MANAGEMENT IN
HONG KONG AIR CARGO TERMINALS LIMITED

Department	Functions
Planning	Performing system study, analysis and design, specifying system functions and requirements, and coordination
Users (Operations, Engineering, Personnel, Accounts etc.)	Defining problem, project scope and requirements, testing and acceptance
Technical/Executing Departments (Engineering, Information Services)	Specifying technical requirements, execution, and detailed design

For example, in the company wide Office Automation (OA) project, an OA Steering Committee was formed to manage the computerization projects in departments such as Personnel, Accounts and Engineering. Each departmental project is undertaken by a part-time working group of similar organisation structure (Table 2).

Functional approach

Projects which may involve minimal interdepartment coordination, such as installation of personal computer and individual department office renovation, the functional approach is followed. If the project is a small one, the requisitioning or user department contacts the concerned execution or technical department, and conveys their requirements and expected schedule. Occasionally these minor projects may have some implications for company standards or policies, or for the operations of other departments. In these cases, the Planning Department will provide their comments or advice.

If the scale of the project is large, Planning will take up the role according to the functions stated in the previous section, i.e. to conduct studies, coordinate and specify user requirements, and then pass the agreed plan to the execution department.

TABLE 2

MEMBERS OF TYPICAL WORKING GROUP IN
HONG KONG AIR CARGO TERMINALS LIMITED
(OFFICE AUTOMATION PROJECTS)

Working Group Chairman	-	Head of the user department (Engineering, Personnel or Accounts)
Members from	-	User department
	-	Planning department
	-	Information Services department (the technical department)

Kowloon-Canton Railway Corporation

Though project control is regulated formally in KCRC, the project planning organisation is less rigid and task oriented.

Project team approach

The project team structure is generally used in the Planning & Projects Division for handling project assignments, including all major and minor works items. The team serves as the coordinating unit, for monitoring progress, and for gathering inputs from various planning departments in the division.

Depending on the nature of the project, the coordination engineer or project manager, either from electrical and mechanical or civil and architectural disciplines, will be selected by the senior planning manager to take charge of the project. Initiating departments do not play any role in the project team organising structure, which can be considered as the task force for individual projects. The functions of the project team will be dissolved once the project is completed. So as to avoid conflicts in allocation of resources, and to control the scheduling of the project, major works and minor works progress committees are set up in the Planning & Projects Division.

Working group approach

For projects of large scale or of a problem solving nature, the working group approach is to be employed in KCRC. Since resources from several

departments may be mobilised in the approach, the set up of the working group is usually created upon the instruction of a divisional head. In most cases, the chairman of the working group is the head of the project initiating department. Members are selected from the planning, finance and initiating departments. The working group approach is used in handling large issues, and acts as a means of problem solving. Outputs of the working group, in terms of recommendations or alternatives, are forwarded to the divisional head for final approval. In this approach, the working group meets on an ad-hoc basis to discuss the project schedule, scope, alternatives and to produce feasible solutions for the top management. The working group plays a proactive role in the concept and planning stage of a project.

Functional approach

The functional approach is exercised in all stages of a project life cycle by different departments involved in the project. Initiating and planning departments work independently towards their own functional goals in the different stages of a project. Coordination and communication between the two parties are facilitated by means of ad-hoc progress meetings or by memoranda.

Comparison of the Two Terminals

All three organisation approaches to project planing are found in the two organisations, but they

have different sets of meanings in each. In HACTL, the size of a project determines the selection of an appropriate organising approach; while in KCRC, all three approaches appear in different stages of the project life cycle of one single project. It is difficult to compare which practice is more favourable, however, it shares a common point of view that group efforts are necessary ingredients in planning and implementation of projects.

Procedures for Project Approval and Authorisation

Hong Kong Air Cargo Terminals Ltd.

There are two stages after project initiation that need management approval. The first stage is the preparation of a project proposal, which may be a feasibility study or a preliminary plan with initial design, costing, schedule, etc. Approval is given by management, based on the proposal content, to elaborate on the details of the project in such areas as designs, economics, costs and cash flows.

At the second stage, when these details have been worked out, formal approval is required to implement the project. As stated, a project is an undertaking that usually involve capital expenditures. In HACTL, there are standard procedures for the application and approval of capital expenditure independent of the size and nature of the concerned project. However, the amount of capital expenditure will determine the level of the management or the directors to authorise the

project execution. For instance, project expenditure above HK$500,000 requires approval of the Board of Directors. Once approval is granted, the project can be proceeded to the issue of contract or purchase order.

Kowloon-Canton Railway Corporation

Structurally, the freight departments are sub-divisional units in the Corporation, the procedures for project approval and authorisation initiated by the two departments have to follow the overall policy guidelines of the Corporation. When a project is initiated by the freight department head, it has to go through the preliminary exploratory stage within the Commercial Division and obtain the approval status in category B by the division head. Then, it will be channelled to the Planning & Projects Division to enlist their support for finalisation of detailed design, for drawings, and for the preparation of cost estimate. In the initiation and exploratory stage, full justifications and conceptual requirements of the project must be sounded out by the initiating department as are financial analyses to be conducted for revenue earning projects. Approval in category B means that justifications and conceptual requirements of a project have been accepted in principle by the initiating division head.

The next stage will be jointly taken up by the Planning & Projects Division with the initiating

department in preparing alternative schemes, conducting site investigation, resolving legal problems and obtaining approval from relevant government authorities. After these technical jobs are completed, the project plans with detailed cost estimates, will be presented to the initiating division head, the Managing Director or the managing board for approval and upgrading to category A. With category A approval status, a project receives full financial authority and a fund authorisation form will then be circulated to relevant management levels for authorisation signatures.

Authorisation limits of different levels of management are set in accordance with the value of the project cost estimate. For instance, all projects with estimated cost in excess of HK$10 million have to be approved by the managing board.

Comparison of the Two Terminals

Project approval procedures are formalised in both cargo terminals. Standard procedures have to be followed in HACTL and policy-guided procedures are well specified in KCRC. The final authorisation stage is completed when the authorisation signatures of relevant management levels are put on the approval documents of the projects. The level of management to be sought for authorisation depends on the value of the total capital expenditure of the projects in both organisations (Table 3). There are significant differences in the distribution of authorisation power and the

TABLE 3

PROJECT AUTHORISATION LEVELS FOR
HONG KONG AIR CARGO TERMINALS LIMITED
AND KOWLOON-CANTON RAILWAY CORPORATION

	HACTL	KCRC
1. Unbudgeted Projects		
Board of Directors/ Managing Board	over HK$100,000	over HK$10 million
Managing Director	up to HK$100,000	HK$250,000 to HK$10 million
Divisional Head	N.A.	below HK$250,000
Department Head	Nil	Nil
2. Budgeted Projects		
Board of Directors/ Managing Board	over HK$500,000	over HK$10 million
Managing Director	HK$25,000 to HK$500,000	up to HK$10 million
Divisional Head	N.A.	up to HK$5 million
Department Head	below HK$25,000	Nil

Note: N.A. = not applicable

authorisation amounts in both organisations. In HACTL, department heads are given authority to approve projects, though of small value, whereas in KCRC, the minimum level of authorisation rests on the divisional heads. The delegation of authorisation power to a lower management level in HACTL than in KCRC is partly because HACTL is smaller and therefore has fewer levels of management, and partly because this arrangement in HACTL facilitates its operational philosophy of flexibility. On the other hand, the relatively higher authorisation limits in KCRC are due to its larger organisation size as well as its specific infrastructure requirements.

Implementation and Control of Authorised Projects

Hong Kong Air Cargo Terminals Limited

The major control of the project will be passed from the planning team (project team or working group) to the execution department, such as Engineering, for the implementation of the project. Normally the Engineering Manager (Project) will assume the responsibility to control and monitor the implementation, which is typically performed by external contractors. There are formal procedures for any variation order (additional expenditure apart from the approved project amount) and payment. The procedure also requires that any functional or design change during execution should be referred back to the concerned planning team.

Project management at this stage is also performed by means of regular progress reporting meeting of the steering committee.

Kowloon-Canton Railway Corporation

The implementation stage of projects will be exercised wholly under the jurisdiction of the Planning & Projects Division. All technical work for a project, including preparation of tender requirements, compilation of contract documents and overseeing the project progress, is carried out by the Planning & Projects Division. A coordination engineer/project manager will be assigned to assume the overall coordination of each project among the planning departments of the different disciplines, such as civil, electrical and mechanical. The project manager will also be responsible for liaison with outside parties (consultancy firms, contractors, government authorities and utility companies), in dealing with all technical aspects of the project. For the revenue earning or commercial aspect of the project, initiating department head will be the accountable party. Due to diversity among the different projects, the implementation stage cannot be governed by strict written guidelines or policies, and a high degree of flexibility and autonomy is allowed by KCRC.

On the other hand, a more formalised control framework is required by the Corporation to ensure that all projects are properly controlled in terms of time

and money. The control function is usually exercised by the same project manager in consultation with the finance people. Scheduling of projects is monitored by the relevant progress review committees. The following elements will be identified and closely monitored so that project control can be effectively implemented:

1. Project originator and approval;
2. Purpose scope and expected result of the project;
3. Project schedule and timing;
4. Responsibility for execution;
5. Cost estimation and breakdown;
6. Resource allocation.

Comparison of the Two Terminals

In both companies, a responsible person, either an Engineering Manager or coordination engineer/project manager, is assigned to oversee the implementation of a project. Written procedures are to be referred to in implementation and control of projects in HACTL but the situation is more flexible in KCRC. Time and money are the two main factors that KCRC is concerned with controlling.

Applicability of Theory and Model

Project Life Cycle Model

Hong Kong Air Cargo Terminals Limited

The majority of projects in HACTL follow the project life cycle as outlined in Chapter II, unless they are rejected either at the end of the concept stage or at the end of the planning stage. When the project is initiated, past experience from similar projects is referred to, and there are no formal guidelines as to which of the three approaches for project organising should be adopted. Problem identification, if any, and functional requirement specification, based on the defined project objective, are the initial steps taken in the concept stage. A quantitative study is usually carried out, the results of which will form part of the project proposal. The approval at this end of concept stage is, however important and decisive to the destiny of the project. In fact, this is the main screening point for all initiated projects in HACTL, and most of approved projects at this juncture will also be approved formally (capital expenditure application and approval) at the end of the Planning Stage.

HACTL tends to do things slightly in advance of Wideman's grouping of life cycle activities. Studies are likely to be conducted in the concept stage rather than in the planning stage. The project management organisation, if any, is well established in the planning stage, or even as early as the concept stage,

earlier than Wideman's grouping in the implementation stage.

The actual implementation works are normally performed by external contractors. When the project is completed in the termination stage, it will be tested for acceptability by both the execution department and the user department, the former focusing on the maintenance aspect, while the latter is more concerned with the operational and functional aspects. Training is given to staff in both departments.

Kowloon-Canton Railway Corporation

The project planning system in KCRC closely follows the project life cycle model. Every project goes through the four phases of its life cycle. Although no strict adherence to the model is required by the Corporation in carrying out a project, the whole procedure is performed in line with theoretical model. The initiating department brings up an idea, specifies the concept and takes it to appropriate management level for approval. Planning work starts in preparing plans, sketches, diagrams, schedules, calculating costs and estimates, and developing alternatives. Execution or implementation of the plans are carried out by project teams to which the project managers are assigned to take care of the projects and oversee the progress of the projects from their commencement to final completion. Termination of projects happens once the projects are completed. The Planning & Projects Division will transfer the final outcome of the

project, as well as the management responsibility, to the initiating department at this stage.

Training is limited and informal, although staff of the planning departments may be well acquainted with the outcome of the projects. Final users of initiating departments are not well informed or formally trained.

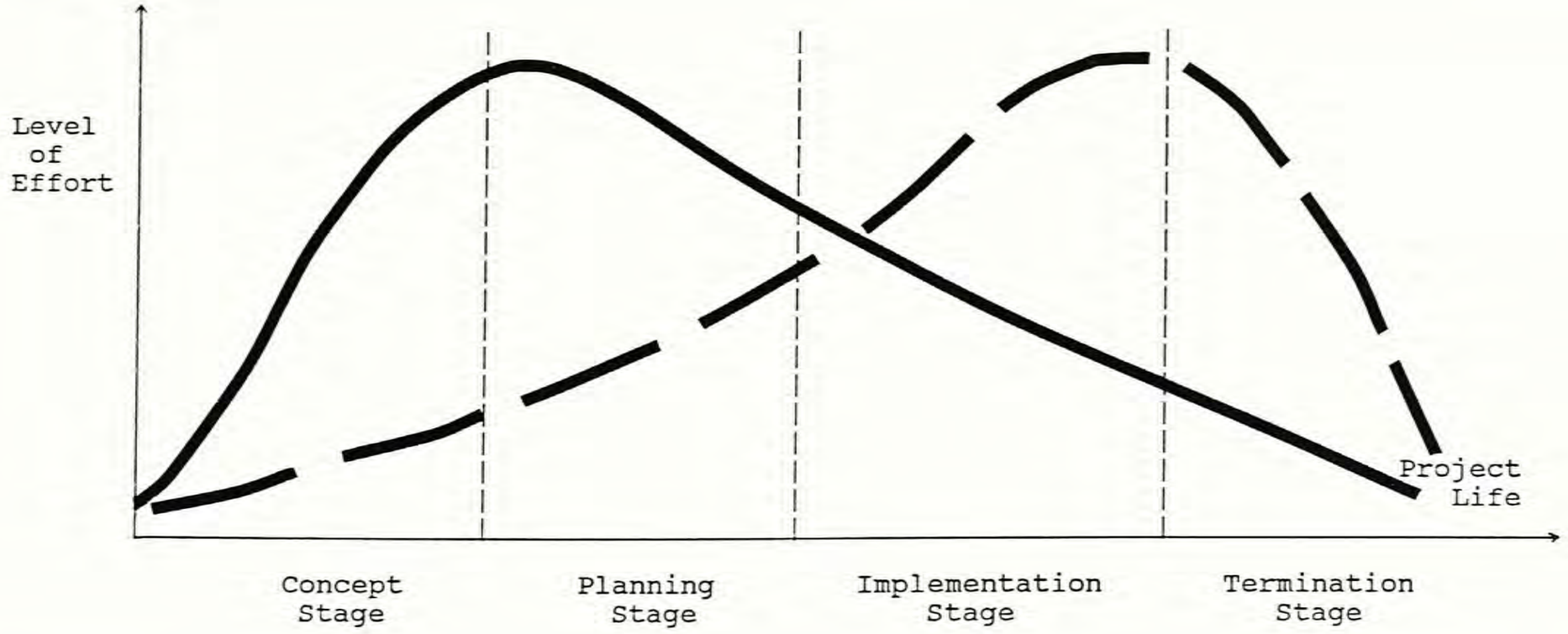
Comparison of the two terminals

In both cargo terminals, project planning work follows the four distinct phases of the project life cycle. Although there are no official rulings in the two companies that their planning personnel have to follow the project life cycle model in developing their projects, they are actually practising the model in their daily planning activities. User training at the termination stage is limited and not well coordinated in KCRC but comprehensive training is offered to both execution and user departments in HACTL.

As most of the projects are actually implemented by outside contractors, it is therefore believed that more effort would be focused on performing the activities of the first two stages of the project life cycle, rather on the implementation stage. The Level of Effort diagram given in Figure 3 in Chapter 2 should be modified for the two organisations as shown in Figure 6.

FIGURE 6

LEVEL OF EFFORT DIAGRAM FOR HONG KONG AIR CARGO
TERMINALS LIMITED AND KOWLOON-CANTON RAILWAY CORPORATION



Note: Wideman's Curve (Figure 3) is superimposed for comparison (broken curve).

Project Management Functions

Hong Kong Air Cargo Terminals Limited

The management of resources, scope and risk of the project is performed by the steering committees, leaders of project teams or working groups. Communications are facilitated by regular and special meetings, and by the circulation of external correspondence, meeting minutes, and project progress charts and tables. Quality management is usually assured on the side of contractors who are bound by specifications and contract terms and conditions.

Kowloon-Canton Railway Corporation

Project management functions are mainly performed by the project managers. The initiating department heads will not normally take active role in monitoring the progress of the project. Project managers can make use of the situation to carry out the project management work with little interference from the initiating departments. Final results of the projects will depend solely on the personal experience and professional knowledge of the project managers, as no specific standards or guidelines are set by the Corporation in monitoring the implementation processes of the projects. The major or minor works progress review committees perform a coordination function for the various departments in the Planning & Projects Division, so that information flow and coordination between different project teams can be ensured. Performance of project management is measured by the

savings in project costs or shortening of project completion time.

Comparison of the two terminals

The project management functions are jointly performed by multiple parties in HACTL, which include the steering committees, leaders of project teams or working groups. In KCRC, the project manager is the person in-charge of a project and takes up most of the project management functions. Communication and coordination are facilitated by meetings or written documents.

Quality management is assured in the stipulated performance of the contractors, and is measured in terms of savings of time and capital.

Input-Output System Model

Hong Kong Air Cargo Terminals Limited

The input-output system model is valid for HACTL's environment. However, external consultancy or advice is also an input to the system. The relevant factors that affect the outputs of the systems in HACTL include the project objectives, planning effort, leadership, communication, human error, time, technical uncertainty, design management and financial requirements. From experience, unsatisfactory outputs of projects can be attributed to inadequate planning effort, human errors and insufficient time for planning in many cases.

Human errors normally occur as a result of poor documentation of company standards and specifications, which leads to easily overlooking critical items. Sometimes, insufficient time allowed for planning forces managers to take a simplified view and to produce a short-term solution. Similar poor outputs are obtained due to inadequate planning effort because of inexperienced and insufficient planning staff.

Kowloon-Canton Railway Corporation

In general, the project planning system of the railway also follows the simple input-output system model. Inputs include concept specification, scope definition, and financial justifications while the outputs generated comprise target outcome, schedules, resources allocation, and project acceptance. Processing of inputs into outputs goes through a set of authorisation and approval procedures.

Internal factors influencing the system consist of managerial and organisational factors, technical factors, financing and commercial considerations. External dimensions enveloping the input-output system model originated from environmental, social and political pressures, social commitment and political considerations.

Comparison of the two terminals

The application of input-output system model is also seen in the two organisations. Though the process of transforming inputs into outputs may differ between

the two companies, it follows the theoretical framework of an input-output system model. Since KCRC is a public statutory company, external pressures from environmental, social and political aspects may significantly affect the transformation process, but HACTL's situation is relatively less difficult.

CHAPTER V

EVALUATION OF THE TWO PROJECT PLANNING SYSTEMS

Strengths and Weaknesses

Hong Kong Air Cargo Terminals Limited

The project planning system in HACTL is characterized by its degree of flexibility. There are few policy guidelines or standards for project planning and control, although some have recently been put into effect. This is probably due to the relatively young age of HACTL as compared to KCRC. The advantages of having a less formal and more flexible framework for project planning in HACTL are:

1. The most efficient approach can be selected to undertake project planning (project team, working group or functional approach) based on the scale and urgency of the project and the current departmental resources.
2. The initiating or user department is involved along most of the project life cycle. Good communication can be facilitated and user requirements can be met at project termination without much deviation. In addition, interdepartmental human relationships can be enhanced.

The main drawback of the existing system is the general loss of objectivity in such activities as requirement specification, alternatives selection and detailed design, as a result of the active participation of the user department. The influential role of user department often discourages the technical and planning staff from objectively and independently applying their professional knowledge in project planning. Often, all the user department wants is a quick solution to an immediate problem. The result is that short term problem solving, operations-oriented plans are proposed. What is more, the unclear definition of role and responsibility for various parties, although providing flexibility, is also a source of potential conflict and project error. The management must be asked from time to time to clarify or redefine responsibilities so as to let the project planning proceed.

Kowloon-Canton Railway Corporation

Under the guidance of KCRC's Corporate Policy, the project planning system of KCRC, which is similar to other working procedures and policy functions, is basically well documented and organised in a formal manner. The tight selection criteria in recruitment help to ensure that people involved in working for project planning are academic qualified and are equipped with sufficient working experience in their respective technical fields. Standardisation of

project management is achieved by following these procedures. This standardisation also helps to improve coordination and communication among concerned departments in developing and implementing the projects. Since there is no line relationship between the personnel from the planning departments and those from the initiating departments, the former can objectively and independently performed their project management work without being influenced by the initiating departments. Specialisation or division of labour is explicitly followed by the planning as well as the initiating departments.

Such a specialisation structure creates an atmosphere in which coordination and human factors play significant roles in determining the degree of success of projects. Personal leadership style of the project managers and initiating department heads may sometimes differ and conflicts will be unavoidably created. In the worst situation, communication at the department head level becomes difficult and lateral/informal communication takes a substituting role.

Weaknesses surface at the termination stage of projects. Results of the projects may deviate from the expectation and remedial work may be required to rectify the problems. It is noted that harmonious human relationships are the primary ingredient for the success of projects, otherwise unnecessary delays and wastage of resources may be created.

Comparison of the Two Terminals

Strengths of the project planning system in HACTL are mainly due to the flexibility of the system, whereas those in KCRC are owing to the existence of written policy guidelines. This is probably because flexible systems seem to work more efficiently in an expanding organisation while formalized systems are the case in a well developed and relatively stable organisation. Standardisation of procedures becomes important as an organisation evolves, and more will be discussed in Chapter VI. The ambiguity in the roles and responsibilities of the planning and initiating departments is the common weakness in the two companies. Such unclear specification of roles and responsibilities creates conflicts and potential project error, which will consequently affect the outputs of a project.

Internal and External Limitations

Hong Kong Air Cargo Terminals Limited

The Planning Department was newly established in January 1990. Before then, planning was only a section in the General Manager's Office. The role of the Planning Department is still under review and not yet published at the time of writing this report. Planning personnel used to act as project coordinators more than project analysts and designers, because of the relatively low staff strength, lack of experience and staff turnover. Under the traditionally dominant role

of user departments the quality of proposed plans was sometimes unacceptable and the projects were then rejected by the management. With the creation of the Planning Department, an active role by planning staff is expected to be assumed in the areas of project planning and control.

As HACTL operates within the Hong Kong International Airport, it is, to a large extent, regulated and restricted by the policy and operations of Civil Aviation Department of the Hong Kong Government. Any major projects having implications on traffic and cargo flows, or on the operations in the Airport region, require the approval of the Civil Aviation Department. This department, without exception, possesses the bureaucratic characteristics of a government department, which may cause unexpected delays and prolong project time. In addition, the strategy and policy on airport development from this department can always have significant impact on the considerations of project planning in HACTL.

Kowloon-Canton Railway Corporation

As a result of four major reorganisations in the last six years, the freight departments are now grouped under the Commercial Division, with the position of divisional director remaining vacant since the division was established in January, 1989. The Planning & Projects Director bears the responsibility to oversee the management of the freight departments until the

Commercial Director is recruited. Without a solely responsible director for the freight business, development of freight related projects is inevitably delayed as top management support is not readily enlisted. In case there is any dispute or disagreement between planning departments and freight departments, the Planning & Projects Director will assume an indifferent position and have the department heads to resolve the conflicts themselves.

Another internal limitation is due to the central divisional function of the Planning & Projects Division. It has to provide planning and project design services to five other divisions. They have to handle more than one thousand projects at one time, and, on average, each project team will have to manage more than one hundred projects simultaneously. Time and manpower resources become scarce, and quality may have to be sacrificed for the favour of quantity.

Because the freight business is running side-by-side with the passenger services, impact on the passenger services and station facilities must be taken into consideration in project design and may become an internal limitation to freight project development. Notwithstanding that the freight business generates a profit margin of more than 50 percent, the proportion of total revenue contributed by freight business is only about 17 percent. Revenue generating capacity also serves as an internal limiting factor for freight projects.

External limitation mainly comes from social pressure groups. Running freight trains generates both noise, and pungent odors from livestock and diesel locomotive exhaust. Environmental pollution is an area vulnerable to public protest and social pressure. Design of freight expansion projects will have to anticipate the effects on neighbouring residential area and possible actions to be raised by the social pressure groups.

Project development also faces external limitations from the Transport Branch of the government. The policy branch emphasizes running the railway core business along the existing 34 km main line, and places little merit on new development or extensions of the permanent way. This conservative approach greatly hinders the scope of project development by KCRC. Social commitment and political considerations also affect the development of freight projects. Railway freight conveyance to or from the People's Republic of China is the most economical and efficient means of transport. Chinese railway authorities welcome any new improvement works to the railway because they consider the 34 km British Section to be an integrated portion of the fifty-four thousand kilometer railway network of China. In view of the uncertainty after 1997, long term investment in capital intensive projects will have to bear a higher political risk, and, accordingly, a higher rate of return is required by KCRC to justify the investment decision.

Comparison of the Two Terminals

Manpower is a common internal constraint in project planning in the two organisations. Owing to large number of outstanding projects and insufficient manpower resources, quality of project plans may be sacrificed in favour of quantity. In KCRC's situation, freight business is only one of the profit centres in the company, its project development faces more difficulties in obtaining supporting resources from the planning department.

Hong Kong Government is the main external body which imposes external limitations on project planning of the two cargo terminal operators through policies and administrative control (See the cases reviewed in the Appendix). Political uncertainty in view of 1997 is also an external factor that the two terminals have taken into consideration in making their long term investment projects.

CHAPTER VI

CONCLUSION AND RECOMMENDATION

Hong Kong Air Cargo Terminals Limited

Conclusion

Flexibility has been an important element of the corporate culture of HACTL, which is also a characteristic of the air cargo industry in Hong Kong. It is understandable as the environment of handling air cargo is very dynamic, in particular, at one of the busiest airports in the world. Flexible systems seem to work well to ensure the increasing demand can be met. Furthermore, HACTL used to be a relatively small and young organisation (operational in 1976) whereby management control could be exercised with reasonable effectiveness even though very little formal and structured control procedures existed. As a result, a flexible project planning system has proved to work, especially during the early years.

However, as the tonnage increased at an annual compound growth rate averaging 11 percent over the past 13 years, the organisation should be four times as large as that in 1976. On the other hand, the advance of technology applied to the industry makes project planning unable to rely solely on past operational experience in producing plans of advanced systems such

as those in Terminal 2. What is more, the recent high personnel turnover rate has caused a heavy loss of experienced operational and planning people. With all these factors and operated with insufficient documentation facility, the flexible project planning system, though still effective in some cases, seems to have fallen behind the growing pace of the organisation and needs to adapt to the changing environment.

Recommendation

It is recommended that to cope with this, a more formal system of project planning and control, duly supported by staff training in project management concepts and techniques, should be introduced while a certain degree of flexibility is maintained to prevent HACTL from creating a disfunctional bureaucratic environment. In addition, the roles of various departments should be defined in the project life cycle so that a level of objectivity can be achieved.

To this end, a committee on Company Standards and Policies should be set up to work out the required documentation for reference by future project planning activities. Specifically, the scope of work covered by the committee should include the following elements of project planning:

1. Project organisation, such as memberships of the steering committees and project teams, and the functions of each member.

2. Project development standards for control, such as project change requests and the issuing of variation orders.
3. Project development standards for documentation, such as study reports, progress reports and specifications.

Kowloon-Canton Railway Corporation

Conclusion

In the KCRC's situation, project financing is not a problem for the planning as well as the initiating departments. In the annual report of 1988, KCRC's chairman made the following statement:

> Total net assets are now $4 billion, while borrowing has been contained at less that $1.5 billion; and the debt to equity ratio is 1:2, a figure which very few railway companies in the world can match.... Overall, return on net assets has growth steadily from negatives in 1983 and 1984 to 14% in 1988.[1]

Profitability has been achieved and financial stability is evident. On the positive side, financial considerations do not create any constraint for projects development in KCRC. However, on the negative side, such a stable financial environment brings up the problems of deferring projects or extension of project schedule. Although, on the surface, it does not create any direct costs or revenue loss to the Corporation, it has indeed hindered the growth and development

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[1]Kowloon-Canton Railway Corporation. Kowloon-Canton Railway Corporation Annual Report 1988 March 1989.

capability of the Corporation in catching up with the changing transportation needs. So as to provide improved quality service at economic cost, project scheduling plays as an important yardstick in measuring the performance of the implementation stage of the project life cycle.

Communication is one of the crucial factors in determining the success of a project. Communications between senior management and line department heads has to be improved in KCRC. It is a common practice for the senior management not to give clear direction to the line managers about long term project planning objectives. A bottom-up approach in project planning wastes time and resources when the top management gives no clear cut direction or development guidelines.

It is also straight forward to appreciate that communications between planning department and initiating department are the corner stones for building up a project. Due to differences in managerial style, communication between the two departments may not be effective.

Ambiguities exist in the roles of the project planning and initiating departments in KCRC. Although such roles cannot be generalized or predefined in a structured framework, the ambiguous relationship can be resolved by convening coordination meetings and preparing proper documentation of the specific roles of both parties.

Recommendations

Specific recommendations for improving the performance of the project planning system in KCRC are:

1. To advocate the importance of just-in-time scheduling concept to both planning and initiating departments so that idle time and misallocation of resources can be minimised.
2. To conduct more top-down briefings and brain-storming sessions so that communication between senior management and line managers can be reinforced.
3. To invest in management development programme with the purpose of creating a more open and cooperative atmosphere in the company to bridge the communication gap between the planning and initiating departments.
4. To include clear role descriptions of both planning and initiating departments as a part of project documentation to be approved by the appropriate management level.

All these recommendations serve one common purpose which is aiming at upgrading the performance of the project planning system of the company and finally improving its operating efficiency.

Overall Conclusion

This research project has undertaken a critical approach to analyse the project planning systems of the two major cargo terminal operators in Hong Kong. Through comparison between the project planning systems of the two organisations, common areas as well as differences are discussed in the foregoing chapters. It is concluded that people working under the project planning systems of the two cargo terminals are unconsciously following the theoretical models of project planning in performing their daily planning activities. Specific recommendations made at the end of this report provide some practical advices for the improvement to the project planning systems of the two cargo terminals. Hopefully, such advice will also be helpful to planning executives of other business in solving similar problems in their particular situation.

APPENDIX

CASE REVIEW

HACTL Terminal Two

The objective of this HK$1.2 billion project is to construct a second air cargo terminal opposite to the existing one, which will double the capacity to meet demand up to the end of 1998. A full time project team was appointed in mid-1987 consisting of the following members:

* Project Team Leader - Planning Manager from Planning Department
* Engineer from Engineering Department
* Senior Supervisor from Operations Department
* Planning Officers from Planning Department

Starting from mid-1987, the Project Team first worked on proposal preparation on requirement with preliminary terminal design. Approval was sought from the Board of Directors in December 1987, which was followed by the processes of detailed design, preparation of functional and technical specifications and contract documents. Liaison and negotiation with various contractors were also carried out.

The project team virtually disbanded in mid-1989

when the details of the project had almost been finalized and the control of project, specifically on the part of execution or implementation, was passed to Engineering.

During the concept and planning stage of Terminal 2 in 1988 and early 1989, it was understood that the government was going to announce the plan of replacement airport and the government indicated that it would take at least ten years to construct a new airport. However, the June 4 event brought about a confidence crisis, and the government finally decided, in October 1989, that the replacement airport would be constructed at full speed to be operational by early 1997. This government action immediately made Terminal 2, which was then under construction, provide more capacity than required by the airport before 1997.

Conclusion

This case is a good illustration of how project planning in HACTL can be heavily affected by external factors such as politics and government decision. Had the plan of building the replacement airport by the year 1997 been known to HACTL in 1988, the Terminal 2 project, as the writers believe, should have been scaled down and the investment involved could have been reduced by a significant portion.

Besides, the organisation for this project is also a typical example for project team approach practised in HACTL.

KCRC Hung Hom Bay Development Project

From 1983 through 1985, KCRC experienced a 10 percent growth in inbound freight, and a 182 percent growth in outbound freight. It was foreseen that the trend would continue in the long run in line with the increasing trade volume between Hong Kong and China. In mid 1986, the Corporation decided to appoint a consultant to study a freight terminal expansion project on the newly reclaimed land at Hung Hom Bay, adjacent to the existing Kowloon Freight Terminal.

With the findings of the consultancy study, the Corporation submitted a land grant request to the government asking for development of 26 hectares out of a total of 36 hectares of the newly reclaimed land for the expansion of the freight terminal. The new freight expansion project would provide enough capacity to handle freight projection up to the year 2006. In order to make the project financially viable, KCRC requested a free land grant and property development rights above the new freight terminal. The total capital cost for the development project was about HK$3 billion. After lengthy negotiations, the government made a counter offer of 18 hectares to be allocated to the Corporation for both freight terminal expansion and property development.

In 1987, KCRC commissioned a supplementary consultancy study to produce a new proposal for the project, taking into consideration the additional

constraints imposed by the government. Meanwhile, the rail freight traffic started a decreasing trend in mid 1987 because trucking operators had developed their competitive strength and built up prosperous truck haulage traffic between Hong Kong and China. Freight market share of rail fell from 13 percent in 1983 to 10 percent in 1987 and that of road haulage rose from 13 percent to 22 percent. Transport Branch noticed the situational changes and appointed another consultant in mid-1988 to re-study the freight conveyance market between Hong Kong and China, and to also evaluate the rail freight business environment. The consultant's report discouraged the freight development project because they found out that much railborne cargo had been diverted to other modes of transport and road haulage would replace railway to transport cargo between Hong Kong and China. Changes in market situation and political climate had overturned the rail freight development project.

Conclusion

The project failed at its concept stage due to changes in the assumptions of traffic projections and the external limitations imposed by the government onto the project. This case illustrates that external factors and limitations played a determining role in a capital intensive infrastructure project.

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